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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,349	12/04/2003	Philip J. Ellerbrock	038190/270534	8600
826	7590	02/10/2005	EXAMINER	
ALSTON & BIRD LLP BANK OF AMERICA PLAZA 101 SOUTH TRYON STREET, SUITE 4000 CHARLOTTE, NC 28280-4000			DANG, KHANH	
			ART UNIT	PAPER NUMBER
			2111	

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/728,349	Applicant(s) ELLERBROCK ET AL.	
	Examiner Khanh Dang	Art Unit 2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2003/12/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 1-4, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the phrase "altering the predetermined bit rate and repeating said steps of transmitting the first message, determining the predetermined bit rate, and transmitting the second message" is unclear. It is unclear whether the repeating step has anything to do with the altering step. Note that before the repeating step, the bit rate has already been altered. It is unclear whether the predetermined bit rate or the altered bit rate is used in the repeating step. Similar problem is noted regarding claim 11.

In claim 3, the phrase "transmitting an example message from the bus controller to the at least one data channel at an altered bit rate following alteration of the predetermined bit rate and prior to transmission of the first message" cannot be ascertained. As recited in claim 1, the bit rate is altered after transmission of the first message.

In claim 4, the word "baud" appears to be misused to refer to data rate or bit rate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

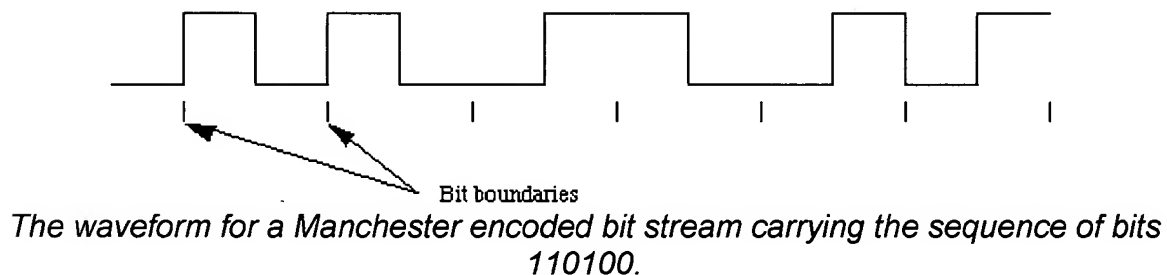
Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karolys et al. (Karolys).

With regard to claims 1 and 5, Karolys discloses a system (shown generally at Fig. 2) for facilitating communications between a bus controller (BCM 28 connected to Host 14) and at least one data channel (constituted by at least the sensors or transducers, column 1, lines 50-61; column 3, lines 51-60,; column 5, lines 22-30) via a common digital bus (24), the system (shown generally at Fig. 2) comprising: a bus controller (BCM 28 connected to Host 14) connected to said common digital bus (24); and a network device interface (TBIM 26) connected between the common digital bus (24) and an associated data channel (constituted by at least the sensors or transducers, column 1, lines 50-61; column 3, lines 51-60,; column 5, lines 22-30), wherein said bus controller (BCM 28 connected to Host 14) transmits a first message to said network device interface (TBIM 26) at a predetermined bit rate provided by a synchronous clock associated with the BCM 28 connected to Host 14.

Karolys does not disclose that the network device interface (TBIM 26) determines the predetermined bit rate at which the first message was transmitted upon receipt of the first message independent of a synchronous clock signal from said bus controller (BCM 28 connected to Host 14), wherein the network device interface (TBIM 26) transmits a second message to the bus controller (BCM 28 connected to Host 14) in response to the first message at the same predetermined bit rate.

However, such encoding technique for clock or bit frequency recovering is old and well-known in the art as Manchester encoding. Manchester encoding, long been considered as an alternative to NZR encoding, is a binary signaling mechanism that combines data and clock into "bit-symbols." Each bit-symbol is split into two halves with the second half containing the binary inverse of the first half; a transition always occurs in the middle of each bit-symbol.

The following diagram shows a typical Manchester encoded signal with the corresponding binary representation of the data (1,1,0,1,0,0) being sent.



In the Manchester encoding shown, a logic 0 is indicated by a 0 to 1 transition at the center of the bit and a logic 1 is indicated by a 1 to 0 transition at the center of the bit. Note that signal transitions do not always occur at the 'bit boundaries' (the division between one bit and another), but that there is always a transition at the center of each bit. A Manchester encoded signal contains frequent level transitions which allow the receiver to extract the clock signal and determine the timing. See also "Manchester Encoding," cited below as evidence of well-known prior art. Further evidence can be found in Hanna et al., Fig. 2, and description thereof, column 1, lines 22-23; column 1

line 35 to column 2, line 13. The receiver then use the extracted or recovered clock or bit frequency to communicate back with the transmitter or controller.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ Manchester encoding instead of NZR encoding in the communication system of Karolys, since the Examiner takes Official Notice that Manchester encoding, as explained above, is old and well-known in the art (as an alternative to NZR encoding); and using Manchester encoding instead of NZR encoding in Karolys only involves ordinary skill in the art for the purpose of providing a "number of advantages" over the NZR encoding (see "Manchester Encoding," cited below). Once the Manchester encoding is employed, it is clear that the clock or bit frequency embedded in the first message independent of a synchronous clock signal from the bus controller (BCM 28 connected to Host 14) is used by the network device interface (TBIM 26) to transmit a second message to the bus controller (BCM 28 connected to Host 14) in response to the first message at the embedded predetermined bit rate. It would also have been obvious to one of ordinary skill in the art at the time the invention was made to alter/adjust/change the bit rate during data transmission for the purpose of changing the rate of data transmission, since such action only involves ordinary skill in the art. It is noted that as disclosed in the originally filed specification, altering or changing bit rate does not provide any advantage or serve any specific purpose. With regard to claim 2, it is clear that receiving the second message at the bus controller at the same predetermined bit rate independent of a synchronous clock signal, since the embedded or recovered clock or bit frequency is use in Manchester encoding. With regard to claim

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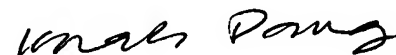
3, it is clear that any message including testing or "example" message can be sent and it is also clear that any embedded bit frequency including altered or adjusted bit frequency can be recovered in Manchester encoding. With regard to claim 4, it is clearly inherent that the bus controller (28 connected to host 14) must send a command to indicate or request a bus frequency at which the message will be transmitted. Baud is simply a signally rate. Baud is sometimes misused to refer to data rate. With regard to claims 6-9, see above discussion. With regard to claim 10, see above discussion. Note also that the synchronous detector is needed in the encoding process. See Sync encoder of Hanna, Figs. 2 and 3, and description thereof. Note also that it is clear that Manchester encoding requires a so-called "bit rate detector" to recover or extract the embedded bit rate. Any embedded bit frequency including altered or adjusted bit frequency can be recovered in Manchester encoding. Note also that Applicants clearly state in the originally filed specification that "[i]t must be understood that for any device to receive asynchronous serial data [without any synchronous signal], it must be able to acquire the timing of the data sequence from the serial data stream. Normally, the receiver of the serial asynchronous data must have a local oscillator to cause its receiver to operate, and recover the timing information from the serial data. Once the timing information has been extracted, the asynchronous receiver is able to receive serial data at certain rates, plus or minus a certain deviation from these rates, given this local oscillator frequency. Manchester encoding of serial data causes a transition from high to low or low to high in the center of every bit. This makes it easy to extract the necessary timing information from the serial data stream. Because it is so easy to

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extract the timing information from the Manchester encoded serial data stream, a relatively large deviation from the expected data rate, based on the local oscillator can be tolerated. This tolerance to relatively large deviations from the expected data rates allows each NDI receiver to use a low accuracy local oscillator to receive the Manchester encoded data." With regard to claim 11, see discussion above.

U.S. Patent Nos. 5,475,687 to Markkula, Jr. et al., 4,449,119 to Hanna et al., 6,574,515 to Kirkpatrick et al., 4,115,847 to Osder et al., 3,909,724 to Spoth et al., 5,008,877 to Levinson, 6,195,365 to Toillon, and "Manchester Encoding" are cited as relevant art.

Any inquiry concerning this communication should be directed to Khanh Dang at telephone number 703-308-0211.



Khanh Dang
Primary Examiner